ABSTRACT

Fast acquisition procedure for TDD W-CDMA

5   The present invention is related to a method for the acquisition of burst synchronisation signals in a spread spectrum communication system, comprising the following steps:

1) Receiving a burst synchronisation signal,

10 2) Applying to the received burst synchronisation signal a dwelling procedure according to a scheduling scheme, whereby the dwelling procedure comprises the steps of calculating a matched filter output, summing the outputs over one slot time, calculating the energy in the sum,

15   searching the maximum energy value and passing it to a Random Access Memory,

3) Based on the scheduling scheme containing a set of $X=(N+1)/2$ hypotheses, being numbered $0,1,…,X-1$ and N being the number of slots in 1 frame, the slots being

20   numbered $0,1,…,N-1$, a dwelling procedure being performed in hypothesis $n=0,…,X-2$ in slots n, $n+N-D$ and $n+D$ and in hypothesis $n=X-1$ in slots n and $n+D$, D being the longest distance in slots between two sync slots,

4) At the end of the scheduling scheme searching for the

25   overall maximum energy value among the energy values stored in the Random Access Memory,

Wherein the scheduling scheme is built up by

   (a) choosing any hypothesis from the set of hypotheses,

30   (b) performing dwelling procedure in the frame slots as indicated in the chosen hypothesis,

   (c) leaving one slot open after the last dwelling procedure for the chosen hypothesis,

(d) choosing an hypothesis not used yet, having in the next available slot a dwelling procedure in that slot and not in the subsequent slot or having in the next available slot a dwelling procedure in that slot as well as in the subsequent,

(e) performing dwelling procedure in the frame slots as indicated in the chosen hypothesis,

(f) leaving one slot open after the last dwelling procedure for said hypothesis,

(g) repeating (d-f) until all hypotheses have been used, whereby in case there is no unused hypothesis that matches, the slot is left empty and the following slot is used.